

HEALTH CARE ADMINISTRATOR PROFIT LEADER

Performance Standard 10A.H

Examine a set of data for three health care administrators of an HMO agency to determine which one is the profit leader accordingly.

- *Mathematical knowledge:* calculate the mean, median and mode for a data set; know how to manipulate data to represent different points of view.
- *Strategic knowledge:* present a case for one administrator being the best choice for profit leader based on analysis of the data.
- *Explanation:* explain in writing completely and clearly what was done and why it was done.

Procedures

1. ***In order to organize, describe and make predictions from existing data (10A)***, health occupations students should experience sufficient learning opportunities to develop the following:
 - Determine the best measure of central tendency from mean, median and mode.
 - Discuss how data can be manipulated to represent different points of view based on the use of different measures of central tendency and based on different graphical displays.

The health-care industry is one of the leading industries in the United States. Students entering health occupations need to understand basic data collection, statistical procedures and how to use this mathematical skill as it applies to the various health-care settings (e.g., research, health care business administration, insurance companies and entrepreneurship). This assessment also aligns with National Skill Standard Information Service Cluster (System and Procedures) and Illinois Workplace Skills E1 (Interpreting the Economics of Work/Identify the role of business in the economic system), E4 (Interpreting the Economics of Work/Investigate opportunities and options for business ownership) and E 5 (Interpreting the Economics of Work/Assess entrepreneurship skills.)
2. Provide each student a copy of the "Health Care Administrator Profit Leader" task sheets and the rubric. Have students review and discuss the task to be completed and how the rubric will be used to evaluate it. Non-graphing calculators are allowed. Use additional paper as needed.
3. Have the students work individually to solve the problem. (Do not help the students or guide their thinking as they solve the following problem.) All work should be completed in class.

Three administrators work for the same HMO Agency. Each is being considered for profit leader of the year. The profit leader of the year is given a \$5,000 bonus. Therefore, each one is trying hard to make the case to be the person selected, based on a year's profit data.
4. Evaluate each student's work using the rubric and its guide to determine the performance level. Give each student a score in each of the three categories, scoring each part of the problem separately. Students receiving a 4 should be able to look at the situation in several ways. For example, they will consider different statistical representations of central tendency, as well as total profit and distribution of income. A score of 3 will generally focus on fewer measures of central tendency such as mean or median and will probably not consider all the relevant data such as total profit or net income made. A score of 2 will focus on only one measure of central tendency and few other details, generally having trouble viewing the data from multiple perspectives. A score of 1 reflects an inability for students to look past one measure of central tendency and an inability to view complex information from more than one point of view. Minor errors in computation include making errors in the actual addition or multiplication or rounding incorrectly. Major errors include using the wrong operation or formulas. Evaluate each part as follows:
 - Part A: The students should describe how each administrator could be viewed as the profit leader. The first administrator had a mean income of \$172,083.33, a median of \$170,000, a mode of \$175,000 and a total profit of \$6,195,000. The second administrator had a mean income of \$146,085.55, a median of \$145,000, a mode of \$190,000 and a total profit of \$5,285,000. The third administrator had a mean income of \$130,416.67, a median of \$125,000, a mode of \$180,000 and a total profit of \$6,260,000.
 - Part B: The students should present a case for one of the administrators and justify it in terms of the income figures. Students may choose to make a case in terms of inner-quartile range, total dollar profit, highest average income, etc. There is not a single correct answer for this part. The key is to be able to produce a convincing argument for the position the student takes.

Examples of Student Work

- [Meets](#)
- [Exceeds](#)

Time Requirements

- Two class periods

Resources

- Copies of the "Health Care Administrator Profit Leader" task sheets
- Non-graphing calculators
- Mathematics Rubric

NAME _____ DATE _____

HEALTH CARE ADMINISTRATOR PROFIT LEADER

Student Task Sheet

Three health care administrators work for the same HMO agency. Each is being considered for profit leader of the year. The profit leader of the year is given a \$5,000 bonus. Therefore, each of the individuals is trying hard to make the case to be the person selected, based on profit data. The chart provided on the next page shows the net profit or income made by each administrator by the various facilities he/she is overseeing as administrator.

A. Discuss how each person might make a case for being the profit leader, based on the data provided. Be sure to include a comparison of measures of central tendency for each administrator as part of your analysis.

B. Which person do you think should be declared the profit leader, and why?

**HEALTH CARE ADMINISTRATOR PROFIT LEADER
Data Sheet**

Month	Profit by site in thousands of dollars		
	Administrator #1	Administrator #2	Administrator #3
January	90, 125, 200	90, 100, 155	60, 75, 145, 255
February	150, 225, 375	115, 130, 150	60, 85, 160, 195
March	130, 175, 205,	125,130, 140	55, 65, 145, 180
April	125, 155, 180,	145, 160, 190	75, 110, 175, 180
May	160,175, 175	120, 165, 170	50, 60, 140, 165
June	125, 145, 255	155,190, 200	85, 90, 180, 190
July	110, 140, 210	95, 110, 170	55, 60, 140, 175
August	135, 150, 200	105, 145, 190	85, 90, 180, 190,
September	120, 145, 190	110, 125, 165	70, 80, 225, 375
October	175, 195, 225	165, 190, 200	65, 80, 180, 195
November	150, 165, 190	115,135, 175	70, 70, 150, 165
December	150, 175, 200	125, 145, 190,	75, 100, 195, 210

MATHEMATICS RUBRIC

NAME _____ DATE _____

- Exceeds standard (must receive a 4 in each area)
- Meets standard (must receive all 3's or a combination of 3's and 4's)
- Approaches standard (must receive all 2's or any combination which may include a 3 or a 4)
- Begins standard (has no 3's or 4's but not all 1's)
- Absent (has all 1's and 0's)

	Mathematical Knowledge	Strategic Knowledge	Explanation
4	<ul style="list-style-type: none"> • Wrote the right answer. • Used math words correctly to show understanding of how math works. • Worked it out with no mistakes. • Used the right math words and labeled the answers. 	<ul style="list-style-type: none"> • Identified all the important parts of the problem, and knew how they went together. • Showed all the steps used to solve the problem. 	<ul style="list-style-type: none"> • Wrote what was done and why it was done. • If a drawing was used, all of it was explained in writing.
3	<ul style="list-style-type: none"> • Knew how to do the problem, but made small mistakes. 	<ul style="list-style-type: none"> • Identified most of the important parts of the problem. • Showed most of the steps used to solve the problem. 	<ul style="list-style-type: none"> • Wrote mostly about what was done. • Wrote a little about why it was done. • If a drawing was used most of it was explained in writing.
2	<ul style="list-style-type: none"> • Understood a little, but made a lot of big mistakes. 	<ul style="list-style-type: none"> • Identified some of the important parts of the problem. • Showed some of the steps used to solve the problem. 	<ul style="list-style-type: none"> • Wrote some about what was done or why it was done but not both. • If a drawing was used, some of it was explained in writing.
1	<ul style="list-style-type: none"> • Tried to do the problem, but didn't understand it. 	<ul style="list-style-type: none"> • Identified almost no important parts of the problem. • Showed almost none of the steps used to solve the problem. 	<ul style="list-style-type: none"> • Wrote or drew something that didn't go with the answer. • Wrote an answer that was not clear.
0	<ul style="list-style-type: none"> • No answer attempted. 	<ul style="list-style-type: none"> • No strategy shown. 	<ul style="list-style-type: none"> • No written explanation.
Score			